

Amendments to the Claims:

1 - 71. (canceled)

72. (currently amended) An inflatable balloon structure for catheters,
the balloon structure being of predominant longitudinal extent with a proximal end and a distal end, and being suitable for performing an expansion in an object to be dilated,

the balloon structure comprising a proximal shank, a distal shank and an intermediate portion between said proximal and distal shanks,

said balloon structure, including the proximal and distal shanks, having a wall which, when the inflation chamber is expanded, has an outer surface of circular cross-section transverse to the longitudinal extent of the balloon structure, and an inner surface which delimits an inflation chamber, in which

at least one wall cavity is provided in the wall between the outer surface and the inner surface,

the wall cavity extending without interruptions and/or openings, longitudinally relative to the balloon structure, between the distal end and at least a portion of the proximal shank,

the wall cavity following the balloon structure outline from the distal end to at least a portion of the proximal shank,

said wall cavity, suitable for housing a guide wire, defines a guide wire lumen between the distal end and at least a portion of the proximal shank,

the wall cavity has an opening which forms a guide wire lateral opening to allow a guide wire to be inserted in the wall cavity or to emerge therefrom.

73. (previously presented) A balloon structure according to Claim 72 in which, when the balloon structure is inflated or expanded, the outer surface of the intermediate portion is free of protuberances or recesses.

74. (canceled)

75. (previously presented) A balloon structure according to Claim 72 which, when the balloon structure is inflated or expanded, the outer surface of the intermediate portion is cylindrical.

76 - 77. (canceled)

78. (previously presented) A balloon structure according to Claim 72 in which the balloon comprises a proximal tubular portion in the vicinity of the proximal end.

79. (currently amended) A balloon structure according to Claim ~~72~~ 78 in which the ~~balloon comprises a~~ proximal shank connecting the proximal tubular portion and an intermediate portion.

80. (currently amended) A balloon structure according to Claim ~~79~~ 72, in which the proximal shank has an internal taper angle of between 20 degrees and 40 degrees.

81. (currently amended) A balloon structure according to Claim 72 in which the ~~balloon comprises a distal connecting~~ shank is positioned between the intermediate portion and a portion for connection to a distal catheter tip.

82. (currently amended) A balloon structure according to Claim ~~81~~ 72, in which the distal shank has an internal taper angle of between 20 degrees and 40 degrees.

83 - 86. (canceled)

87. (previously presented) A balloon structure according to Claim 72, in which the structure is produced from an extruded tube having at least two cavities, one of which is deformed to form the inflation chamber of the balloon structure.

88 - 90. (canceled)

91. (currently amended) A balloon structure according to Claim 72, in which the balloon structure is produced by expansion of an inflation cavity of a tube with at least two cavities, the tube being produced by coextrusion of at least two materials, a first of these materials forming the wall or wall portion which delimits the inflation cavity, and a second of these materials forming at least a part of the wall portion which delimits a wall cavity.

92. (previously presented) A balloon structure according to Claim 91, in which the material which delimits the inflation cavity is a material that is semi-compliant or partially yielding but resistant to the maximum balloon-inflation pressure.

93 - 94. (canceled)

95. (currently amended) A balloon structure according to Claim ~~93~~ 91, in which the second material has a greater flexibility than the first material.

96. (previously presented) A balloon structure according to Claim 72, in which the wall cavity is coated with or delimited by a layer of material with a coefficient of friction such as to facilitate sliding of a guide wire housed in the wall cavity.

97. (canceled)

98. (previously presented) A balloon structure according to Claim 72, in which, when the balloon structure is inflated or expanded, the wall cavity is separated from the inflation chamber by a wall portion which has, in cross-section transverse the longitudinal extent of the balloon, a thickness of between 55% and 100% of the thickness of a wall portion which separates the wall cavity from the outer surface.

99. (previously presented) A balloon structure according to Claim 72, in which, when the balloon structure is inflated or expanded, the wall cavity is separated from the inflation chamber by a wall portion which has, in cross-section transverse the longitudinal extent of the balloon, a thickness of between 60% and 70% of the thickness of a wall portion which separates the wall cavity from the outer surface.

100. (previously presented) A balloon structure according to Claim 72, in which the inflation chamber is closed in a leaktight manner onto an apex tip, leaving solely openings for access to one or more guide-wire cavities.

101 - 104. (canceled)

105. (currently amended) A balloon catheter comprising a balloon structure,
said balloon structure being of predominant longitudinal extent with a proximal end and a distal end, and being suitable for performing an expansion in an object to be dilated,

the balloon structure comprising a proximal shank, a distal shank and an intermediate portion between said proximal and distal shanks,

said balloon structure, including the proximal and distal shanks, having a wall which, when the inflation chamber is expanded, has an outer surface of circular cross-section transverse to the longitudinal extent of the balloon structure, and an inner surface which delimits an inflation chamber, in which

at least one wall cavity is provided in the wall between the outer surface and the inner surface,

the wall cavity extending without interruptions and/or openings, longitudinally relative to the balloon structure, between the distal end and at least a portion of the proximal shank,

the wall cavity following the balloon structure outline from the distal end to at least a portion of the proximal shank,

said wall cavity, suitable for housing a guide wire, defines a guide wire lumen between the distal end and at least a portion of the proximal shank,
the wall cavity has an opening which forms a guide wire lateral opening to allow a guide wire to be inserted in the wall cavity or to emerge therefrom.

106 - 142. (canceled)

143. (new) An inflatable balloon structure for catheters,

the balloon structure being of predominant longitudinal extent with a proximal end and a distal end, and being suitable for performing an expansion in an object to be dilated,

the balloon structure comprising a proximal shank, a distal shank and an intermediate portion between said proximal and distal shanks,

said balloon structure, including the proximal and distal shanks, having a wall which, when the inflation chamber is expanded, has an outer surface of circular cross-section transverse to the longitudinal extent of the balloon structure, and an inner surface which delimits an inflation chamber, in which

at least one wall cavity is provided in the wall between the outer surface and the inner surface,

the wall cavity extending without interruptions and/or openings, longitudinally relative to the balloon structure, between the distal end at least the proximal shank,

the wall cavity following the balloon structure outline from distal end to at least the proximal shank,

said wall cavity, suitable for housing a guide wire, defines a guide wire lumen between the distal end at least the proximal shank,

a proximal aperture of the wall cavity is produced a predetermined distance from the proximal shank, in the direction proximal from the balloon,

said aperture forms a guide wire opening to allow a guide wire to be inserted in the wall cavity or to emerge therefrom.

144. (new) A balloon structure according to Claim 143 in which, when the balloon structure is inflated or expanded, the outer surface of the intermediate portion is free of protuberances or recesses.

145. (new) A balloon structure according to Claim 143 which, when the balloon structure is inflated or expanded, the outer surface of the intermediate portion is cylindrical.

146. (new) A balloon structure according to Claim 143, in which the proximal shank has an internal taper angle of between 20 degrees and 40 degrees.

147. (new) A balloon structure according to Claim 143, in which the distal shank has an internal taper angle of between 20 degrees and 40 degrees.

148. (new) A balloon structure according to Claim 143, in which the balloon structure is produced by expansion of an inflation cavity of a tube with at least two cavities, the tube being produced by coextrusion of at least two materials, a first of these materials forming the wall or wall portion which delimits the inflation cavity, and a second of these materials forming at least a part of the wall portion which delimits a wall cavity.

149. (new) A balloon structure according to Claim 148, in which the material which delimits the inflation cavity is a material that is semi-compliant or partially yielding but resistant to the maximum balloon-inflation pressure.

150. (new) A balloon structure according to Claim 148, in which the second material has a greater flexibility than the first material.

151. (new) A balloon structure according to Claim 143, in which the wall cavity is coated with or delimited by a layer of material with a coefficient of friction such as to facilitate sliding of a guide wire housed in the wall cavity.

152. (new) A balloon structure according to Claim 143, in which the inflation chamber is closed in a leaktight manner onto an apex tip, leaving solely openings for access to one or more guide-wire cavities.

153. (new) A balloon catheter comprising a balloon structure,

said balloon structure being of predominant longitudinal extent with a proximal end and a distal end, and being suitable for performing an expansion in an object to be dilated,

the balloon structure comprising a proximal shank, a distal shank and an intermediate portion between said proximal and distal shanks,

said balloon structure, including the proximal and distal shanks, having a wall which, when the inflation chamber is expanded, has an outer surface of circular cross-section transverse to the longitudinal extent of the balloon structure, and an inner surface which delimits an inflation chamber, in which

at least one wall cavity is provided in the wall between the outer surface and the inner surface,

the wall cavity extending without interruptions and/or openings, longitudinally relative to the balloon structure, between the distal end at least the proximal shank,

the wall cavity following the balloon structure outline from distal end to at least the proximal shank,

said wall cavity, suitable for housing a guide wire, defines a guide wire lumen between the distal end at least the proximal shank

a proximal aperture of the wall cavity is produced a predetermined distance from the proximal shank, in the direction proximal from the balloon,

said aperture forms a guide wire opening to allow a guide wire to be inserted in the wall cavity or to emerge therefrom.

154. (new) An inflatable balloon structure for catheters,

the balloon structure being of predominant longitudinal extent with a proximal end and a distal end, and being suitable for performing an expansion in an object to be dilated,

the balloon structure comprising a proximal shank, a distal shank and an intermediate portion between said proximal and distal shanks,

said balloon structure, including the proximal and distal shanks, having a wall which, when the inflation chamber is expanded, has an outer surface of circular cross-section transverse to the longitudinal extent of the balloon structure, and an inner surface which delimits an inflation chamber, in which

at least one wall cavity is provided in the wall between the outer surface and the inner surface,

the wall cavity extending without interruptions and/or openings, longitudinally relative to the balloon structure, between the proximal and the distal end ,

the wall cavity following the balloon structure outline from the proximal end to the distal end,

said wall cavity is suitable for housing a guide wire and represents a portion of a guide wire lumen that extends in a proximal direction beyond the balloon structure proximal end.

155. (new) A balloon structure according to Claim 154 in which, when the balloon structure is inflated or expanded, the outer surface of the intermediate portion is free of protuberances or recesses.

156. (new) A balloon structure according to Claim 154 which, when the balloon structure is inflated or expanded, the outer surface of the intermediate portion is cylindrical.

157. (new) A balloon structure according to Claim 154, in which the proximal shank has an internal taper angle of between 20 degrees and 40 degrees.

158. (new) A balloon structure according to Claim 154, in which the distal shank has an internal taper angle of between 20 degrees and 40 degrees.

159. (new) A balloon structure according to Claim 154, in which the balloon structure is produced by expansion of an inflation cavity of a tube with at least two cavities, the tube being produced by coextrusion of at least two materials, a first of these materials forming the wall or wall portion which delimits the inflation cavity, and a second of these materials forming at least a part of the wall portion which delimits a wall cavity.

160. (new) A balloon structure according to Claim 159, in which the material which delimits the inflation cavity is a material that is semi-compliant or partially yielding but resistant to the maximum balloon-inflation pressure.

161. (new) A balloon structure according to Claim 159, in which the second material has a greater flexibility than the first material.

162. (new) A balloon structure according to Claim 154, in which the wall cavity is coated with or delimited by a layer of material with a coefficient of friction such as to facilitate sliding of a guide wire housed in the wall cavity.

163. (new) A balloon structure according to Claim 154, in which the inflation chamber is closed in a leaktight manner onto an apex tip, leaving solely openings for access to one or more guide-wire cavities.

164. (new) A balloon catheter comprising a balloon structure,
said balloon structure being of predominant longitudinal extent with a proximal end and a distal end, and being suitable for performing an expansion in an object to be dilated,
the balloon structure comprising a proximal shank, a distal shank and an intermediate portion between said proximal and distal shanks,

said balloon structure, including the proximal and distal shanks, having a wall which, when the inflation chamber is expanded, has an outer surface of circular cross-section transverse to the longitudinal extent of the balloon structure, and an inner surface which delimits an inflation chamber, in which at least one wall cavity is provided in the wall between the outer surface and the inner surface,

the wall cavity extending without interruptions and/or openings, longitudinally relative to the balloon structure, between the proximal and the distal end,

the wall cavity following the balloon structure outline from the proximal end to the distal end,

said wall cavity is suitable for housing a guide wire and represents a portion of a guide wire lumen that extends in a proximal direction beyond the balloon structure proximal end.